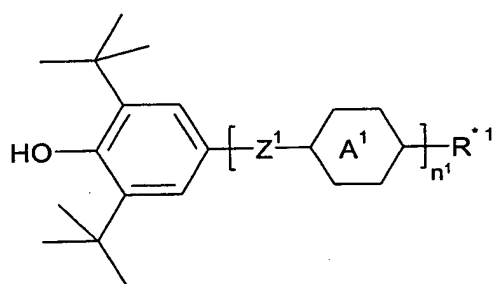


Patent Claims

1. Chiral phenols, characterised in that they induce a cholesteric phase in a nematic liquid crystal and simultaneously act as stabiliser.
2. Compounds according to Claim 1, characterised in that they act as free-radical scavenger.
3. Compound according to at least one of Claims 1 and 2, of the formula I



in which

R^{*1} denotes a chiral radical,

Z^1 , if present more than once, in each case, independently of one another, denotes $-CH_2-CH_2-$, $-CH=CH-$, $-C\equiv C-$, $-COO-$, $-OCO-$, $-CH_2O-$, $-OCH_2-$, $-CF_2O-$, $-OCF_2-$, $-(CH_2)_4-$, $-CF=CF-$, $-CH=CF-$, $-CF=CH-$, $-CH_2-$, $-CF_2-$, $-CHF-$, $-O-$, $-S-$ or a single bond,



if present more than once, in each case,

independently of one another, denotes

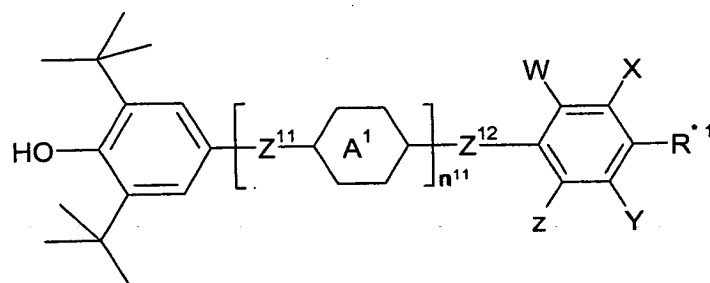
(e) a trans-1,4-cyclohexylene radical, in which, in addition, one or more non-adjacent CH_2 groups may be replaced by $-O-$ and/or $-S-$,

- (f) a 1,4-cyclohexenylene radical,
 (g) a 1,4-phenylene radical, in which, in addition, one or two CH groups may be replaced by N, or
 (h) a radical selected from the group consisting of
 1,4-bicyclo[2.2.2]octylene,
 piperidine-1,4-diyl, naphthalene-2,6-diyl,
 decahydronaphthalene-2,6-diyl and
 1,2,3,4-tetrahydronaphthalene-2,6-diyl,

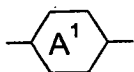
where these radicals (a) to (d) and the phenolic benzene ring may optionally be mono- or polysubstituted by F atoms, and

n^1 denotes 0, 1, 2 or 3.

4. Compound according to at least one of Claims 1 to 3, of the formula Ia



in which



and R^{*1} have the meaning given in Claim 1, and

Z^{11} and Z^{12} each, independently of one another, have the meaning given for Z^1 in Claim 1,

and

n^{11} denotes 0, 1 or 2, and

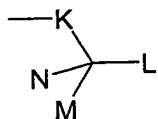
W, X, Y and Z each, independently of one another, denote F, Cl, alkyl or alkoxy, preferably having 1 to 7 C atoms.

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5. Compound according to at least one of Claims 1 to 4, characterised in that

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R^{*1} denotes a chiral radical of the formula



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in which

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K

denotes a single bond, alkylene having 1 to 9, preferably having 1 to 5 C atoms, alkenylene or alkynylene having 2 to 9, preferably having 2 to 5 C atoms, where one, two or more of the $-CH_2-$ groups present in all three types of group may each be replaced by $-O-$, $-C=O-$ or $-S-$, but where no two O atoms are bonded directly to one another and all three types of group may optionally be substituted by halogen, preferably by fluorine, and K preferably denotes a single bond, $-CH_2-$, $-O-$, $-CO-O-$, $-CO-O-CH_2-$, $-O-CO-$, $-CH_2-CH_2-$, $-CH=CH-$ or $-C\equiv C-$, and

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L, M and N,

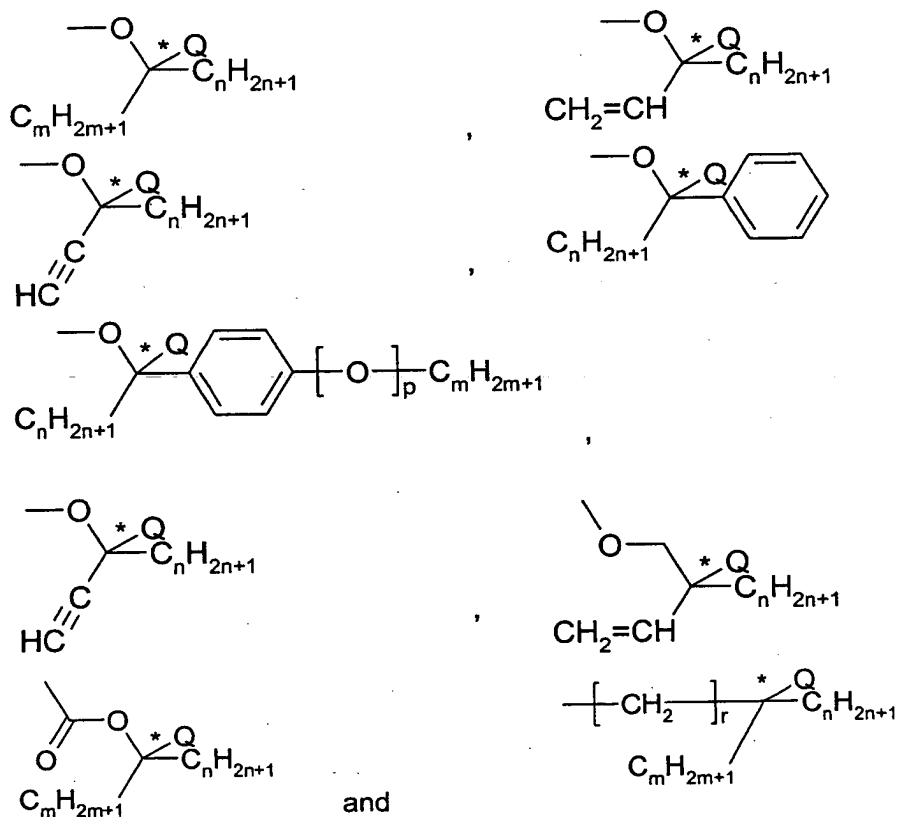
each, independently of one another, but differently from one another and from the remainder of the molecule including the group K, denote hydrogen, halogen, preferably F, aryl or cycloalkyl, alkyl or alkoxy having 1 to 11, preferably 1 to 7 C atoms, alkenyl, alkenyloxy, alkynyl or alkynyloxy having 2 to 11, preferably 2 to 7 C atoms, where one, two or

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more of the $-\text{CH}_2-$ groups present in all six types of group may each be replaced by $-\text{O}-$, $-\text{C}=\text{O}-$ or $-\text{S}-$, but where no two O atoms are bonded directly to one another and all six types of group may optionally be substituted by halogen, preferably by fluorine, and K preferably denotes phenyl, alkyl, alkoxy, alkenyl or alkynyl.

6. Compound according to at least one of Claims 1 to 5, characterised in that

R^{*1} denotes a chiral radical selected from the group consisting of the radicals of the formulae



in which

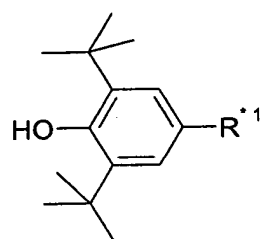
Q denotes H or halogen, preferably H or F, preferably H,

n and m are different from one another and otherwise, independently of one another, denote 1 to 11,

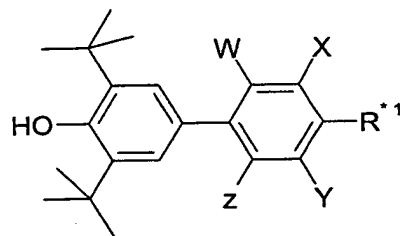
5 p denotes 0 or 1, and

r denotes 0 to 4, preferably 0 to 2.

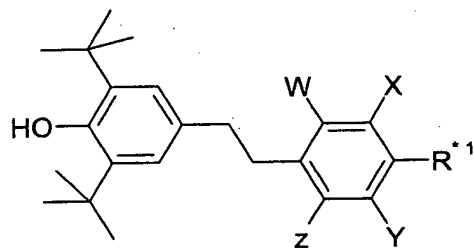
10 7. Compound according to at least one of Claims 1 to 6, selected from the group consisting of the compounds of the formulae Ia-1 to Ia-9



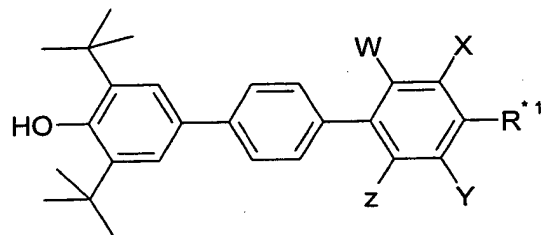
Ia-1



Ia-2

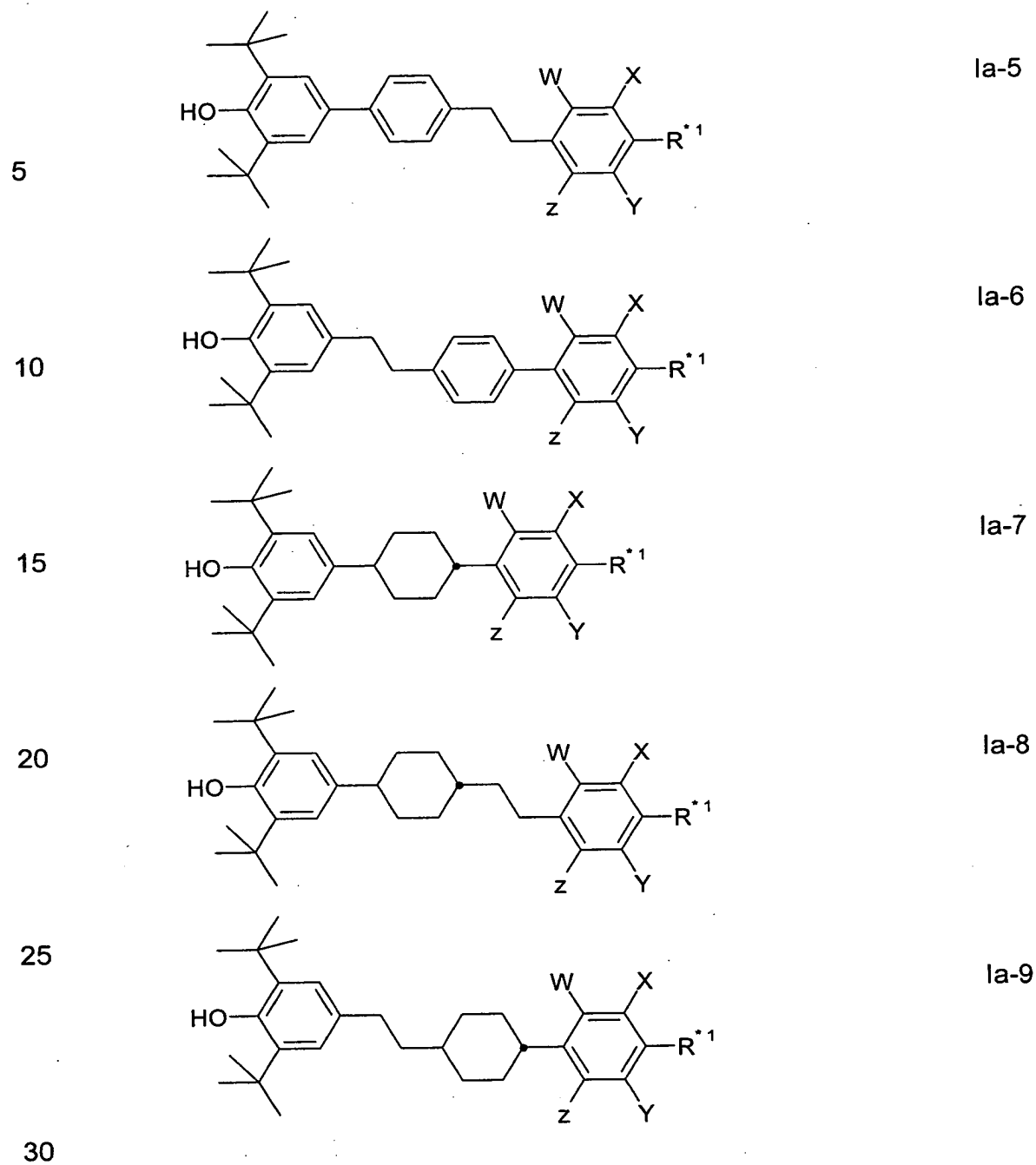


Ia-3



Ia-4

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in which the parameters have the meaning given in Claim 4, and

W and Z preferably denote H.

8. Use of one or more compounds according to at least one of Claims 1 to 7 in a liquid-crystal mixture as chiral dopant, as stabiliser or as chiral dopant and simultaneously as stabiliser.
- 5 9. Liquid-crystal medium, characterised in that it comprises one or more compounds according to at least one of Claims 1 to 7.
- 10 10. Use of a liquid-crystal medium according to Claim 9 in an electro-optical display.
- 11 11. Electro-optical display containing a liquid-crystal medium according to Claim 9.
- 15 12. Process for the preparation of a liquid-crystal mixture, characterised in that a compound which induce a cholesteric phase and simultaneously act as stabiliser is added to the liquid-crystal mixture.
- 20 13. Liquid-crystal mixture, characterised in that it has been prepared by the process according to Claim 12.

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